IN THE CLAIMS:

Amend Claim 1 as set forth below:

1. (currently amended) A hard disk drive, comprising:

a housing;

a disk mounted to the housing and being rotatable relative to the housing, the disk defining an axis of rotation and a radial direction relative to the axis, and the disk having a downstream side wherein air flows away from the disk, and an upstream side wherein air flows toward the disk;

an actuator mounted to the housing and being movable relative to the disk, the actuator having a head for reading data from and writing data to the disk;

a bypass channel formed in the housing for directing air flow generated by rotation of the disk; and

a diffuser located in the bypass channel adjacent to a downstream side of the disk and offset and completely spaced apart from the disk in the radial direction, such that the diffuser reduces drag from the disk due to disk wake in the bypass channel.

2. (original) The hard disk drive of claim 1, wherein the diffuser further comprises an air filter for filtering the air flowing through the housing.

3. (original) The hard disk drive of claim 2, wherein the air filter of the diffuser incorporates electrical charges to filter the air flowing through the housing.

4. (original) The hard disk drive of claim 1, wherein the diffuser is spaced apart from the disk in the radial direction by approximately 0.5 mm.

5. (original) The hard disk drive of claim 1, wherein the bypass channel is located between an outer perimeter of the housing and the actuator, such that the bypass channel completely circumscribes the actuator.

6. (original) The hard disk drive of claim 1, wherein the diffuser is a comb-like structure having a pair of axially-oriented side walls and at least one air foil extending between the side walls.

7. (original) The hard disk drive of claim 1, wherein the diffuser has an air foil having a generally planar orientation in the radial direction and being axially aligned with a planar orientation of the disk, the air foil also having a maximum axial thickness that is less than or equal to an axial thickness of the disk.

8. (original) The hard disk drive of claim 7, wherein the air foil has a leading edge with a flat transverse surface extending in the axial direction that is located immediately adjacent to the disk and is substantially perpendicular to the planar orientation of the disk.

9. (original) The hard disk drive of claim 8, wherein the leading edge of the air foil has an arcuate contour that is complementary in shape with respect to a circular outer edge of the disk.

10. (original) The hard disk drive of claim 8, wherein the air foil has a trailing portion located opposite the leading edge, and wherein the trailing portion tapers down in axial thickness in an air flow direction away from the disk to define a gradually expanding passage, such that as the air flow transitions from the disk to the trailing portion, the taper gradually decreases a speed of the air flow.

11. (original) The hard disk drive of claim 10, wherein the trailing portion of the air foil has a linear trailing edge that is substantially perpendicular to a direction of the air flow at the downstream side of the disk.

12. (original) The hard disk drive of claim 1, further comprising a contraction located in the bypass channel adjacent to an upstream side of the disk and offset from the disk in the radial direction, such that the contraction re-accelerates a slow bypass air flow from the contraction to the disk to provide efficient energy conversion for the air flow from pressure energy to kinetic energy prior to merging the slow bypass air flow with air flow around the disk.

13. (original) The hard disk drive of claim 1, wherein the bypass channel is a full bypass that extends from the downstream side of the disk to an upstream side of the disk.

14. (original) A hard disk drive, comprising:

a housing;

a disk pack mounted to the housing and having a plurality of disks that are rotatable relative to the housing, the disk pack defining an axis of rotation and a radial direction relative to the axis, and the disk pack having a downstream side wherein air flows away from the disks, and an upstream side wherein air flows toward the disks;

an actuator mounted to the housing and being movable relative to the disk pack, the actuator having a plurality of heads for reading data from and writing data to the disks;

a bypass channel formed in the housing for directing the air flow generated by rotation of the disks from the downstream side of the disk pack to the upstream side of the disk pack;

a diffuser located in the bypass channel adjacent to the downstream side of the disk pack and offset downstream from the disks in the radial direction, such that the diffuser reduces air flow drag from the disks due to disk wake in the bypass channel; and

a contraction located in the bypass channel adjacent to the upstream side of the disk pack and offset upstream from the disks in the radial direction, such that the contraction re-accelerates a slow bypass air flow from the contraction to the disks to provide efficient energy conversion for the air flow from pressure energy to kinetic energy prior to merging the slow bypass air flow with air flow around the disks.

15. (original) The hard disk drive of claim 14, wherein each of the diffuser and the contraction further comprise an air filter for filtering the air flowing through the bypass channel.

16. (original) The hard disk drive of claim 14, wherein the diffuser and the contraction incorporate electrical charges to filter the air flowing through the bypass channel.

17. (original) The hard disk drive of claim 14, wherein each of the diffuser and the contraction are spaced apart from outer edges of the disks in radial directions by approximately 0.5 mm.

18. (original) The hard disk drive of claim 14, wherein the bypass channel is located between an outer perimeter of the housing and the actuator, such that the bypass channel completely circumscribes the actuator.

19. (original) The hard disk drive of claim 14, wherein both the diffuser and the contraction have a plurality of airfoils that are axially apart from each other, respectively, in the axial direction, each of the airfoils having a generally planar orientation in the radial direction and being axially aligned with one of the disks, the airfoils also having a maximum axial thickness that is less than or equal to an axial thickness of said one of the disks.

20. (original) The hard disk drive of claim 19, wherein each of the airfoils of the diffuser has a leading edge with a flat transverse surface extending in the axial direction that is located immediately adjacent to said one of the disks and is substantially perpendicular to a planar orientation of said one of the disks, and wherein each of the airfoils of the contraction has a trailing edge located immediately adjacent to said one of the disks, and a leading edge with a rounded surface that is located opposite the trailing edge.

21. (original) The hard disk drive of claim 20, wherein the leading edges of the airfoils of the diffuser and the trailing edges of the airfoils of the contraction have arcuate contours that are complementary in shape with respect to circular outer edges of the disks.

22. (original) The hard disk drive of claim 20, wherein the airfoils of the diffuser have trailing portions located opposite the leading edges, and wherein the trailing portions taper down in axial thickness in an air flow direction away from the disks to define gradually expanding passages, such that as the air flow transitions from the disks to the trailing portions, the tapers gradually decrease a speed of the air flow.

23. (original) The hard disk drive of claim 22, wherein the tapers on the airfoils of the diffuser are smooth and edge-free from the leading edges to the trailing portions, and wherein the airfoils of the contraction have similar smooth and edge-free tapers extending from their respective leading edges to their respective trailing edges.

24. (original) The hard disk drive of claim 22, wherein the trailing portions of the airfoils of the diffuser and the leading edges of the airfoils of the contraction have linear edges that are substantially perpendicular to the directions of the air flow at the downstream and upstream sides, respectively, of the disk pack, and wherein the leading edges of the airfoils of the contraction are rounded.